REMARKS

These amendment and remarks are filed in response to the rejection mailed December 17, 2007. For the following reasons, this application should be allowed and the application passed to issue. No new matter is introduced by this amendment. The amendments to claims 1, 2, and 6 are supported throughout the specification, including Example 1 on page 8, which clearly teaches that only wax is impregnated into the carbon rod.

Claims 1, 2, and 4-6 are pending in this application. Claims 1-6 have been rejected. Claims 1, 2, and 6 have been amended in this response. Claim 3 has been canceled in this response.

Claim Rejections Under 35 U.S.C. § 112

Claims 1-6 were rejected under 35 U.S.C. § 112, first paragraph, because the specification is allegedly not enabled for the paraffin wax over the entire claimed range of molecular weight and carbon rod densities. The Office Action averred that the claimed invention would cause undue experimentation by one of ordinary skill in this art. This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested.

One of ordinary skill in this art would have recognized that the full scope of the claims is enabled. Measurements of density, and endothermic properties via DSC are well known and are common measurement and analysis techniques that are well within the abilities of one of skill in the art. As established in the previous response, DSC is a well-known and well-established analytical technique. Measurements of density, and measurements of endothermic properties via DSC are well-known and common measurement and analysis techniques that are well within the abilities of one of skill in this art. The endothermic amount is the amount of thermal energy (Joules) absorbed per gram of sample within the specified temperature range. Thus, undue

experimentation is not required to required to determine whether a given positive electrode current collector is within the scope of the claims.

The Office Action has not fulfilled the requirements of asserting that the invention is not enabled. The PTO has the burden of establishing that the invention is not enabled. However, the PTO has improperly shifted the burden to Applicants to prove that the invention is enabled. The data in Table 1, shows that positive electrode current collectors that meet the claim limitations have an unexpected improvement in discharge performance.

The Examiner has apparently not considered the claim as a whole. The Examiner has focused on only one limitation, the wax MW, and has not considered the synergy of all the claim limitations. The Comparative Example does not meet the endothermic amount limitation, therefore the Comparative Example is not within the scope of the present claims. The present claims do not require that all electrodes formed with waxes with molecular weights between 300 and 500 are within the scope of the claims. Therefore, Applicants have **not** disproven their invention, as asserted by the Examiner.

Claims 1-6 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Examiner maintained, "the endothermic amount of said paraffin wax or said microcrystalline wax per 1 g of said positive electrode current collector obtained by differential scanning calorimetry at 20 to 45°C is not more than 1.0 J/g" is not supported by the specification. This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested.

Contrary to the Examiner's assertions, the specification clearly provides support for the above phrase on pages 5 and 6. It is clearly described in the specification that DSC is performed on the positive electrode current collector, therefore it is weight of the positive electrode current

collector that must be referred to in the DSC data. Further, because the carbon rod of the positive electrode current collector does not undergo any physical changes at the claimed DSC temperature range, the entire endothermic amount would be attributed to the wax.

Claim 3 is rejected under 37 C.F.R. § 112, second paragraph, as being indefinite because its recited density range is broader than the density range of claim 2. This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested.

Claim 3 has been canceled, therefore this rejection is moot.

Claim Rejections Under 35 U.S.C. § 103

Claims 1 and 4-6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nobuaki (JP 3-297063) in view of Nagasawa et al. (U.S. Pat. No. 4,157,317). This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested.

The Office Action asserted that Nobuaki discloses impregnating a carbon rod in a manganese dry cell with a hydrocarbon having a molecular weight of 300 to 500. The Office Action acknowledged that Nobuaki does not teach the density of the carbon rod. The Office Action alleged that Nagasawa et al. disclose that a carbon rod having a density within the claimed range provides sufficient strength and allows gases to escape, thus preventing cracking. The Office Action considered the claimed endothermic amounts to be an intrinsic property of the paraffin wax having a molecular weight of 300 to 500. The Office Action further advised Applicants to prove all of the different combinations of the prior art carbon rod density and waxes would not provide an endothermic amount of less than 1.0 J/g.

Nobuaki and Nagasawa et al., whether taken alone or in combination, do not suggest the claimed positive electrode current collector. The PTO's apparent attempt to place the burden of **disproving all the prior art examples** on Applicants is <u>improper</u>. Table 1 of the present

specification proves that waxes having the claimed molecular weight and carbon rods with the claimed density do not inherently produce positive electrode current collectors with the claimed endothermic amount (*see* Comparative Example 1).

It is not necessary, when rebutting an obviousness rejection, to prove that all the prior art examples do not possess the claimed property. Rather, the PTO has the burden of establishing a prima facie case of obviousness, and if the Office Action does so, then Applicants have the burden of rebutting the conclusion of obviousness. Applicants do not have the burden of proving all the prior art examples do not possess the claimed property. The citation of *In re Best* in the Office Action does not support the Office Action's assertion that Applicants can be required to disprove all the prior art examples. There is no suggestion in the teachings of *In re Best* that Applicants can be required to disprove all prior art examples. **As shown in Table 1, the endothermic amount is not an inherent property**, and the data in the present specification effectively rebuts the Office Action's assertion of prima facie obviousness.

The present claims are further distinguishable over the cited prior art because Nobuaki and Nagasawa et al., whether taken alone, or taken combination, do not suggest the claimed positive electrode current collector, wherein only the wax is impregnated into the carbon rod. Nobuaki teaches impregnating the carbon rod with a mixture of paraffin wax and crystalline polyolefin resin. Nobuaki discloses in the Examples that crystalline polyethylene was used as the crystalline polyolefin resin. Thus, Nobuaki and Nagasawa et al. do not suggest a relation between the endothermic amount of the positive electrode current collector and the discharge performance obtained with the claimed positive electrode current collector in which the carbon rod is impregnated with only wax.

During examination, claims are to be considered as a whole, and when all the limitations of the present claims are considered as a whole, the claimed positive electrode current collector would not have been obvious. In particular, the cited references do not suggest the unexpected improvement in discharge performance provided by positive electrode current collectors of the present invention, as illustrated in Table 1. As amended, the present claims exclude the high density carbon rod of Example 1. The claimed invention provides the unexpected results of excellent sealing performance and discharge performance of the batteries comprising positive electrode current collectors using low density carbon rods.

Obviousness can be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Kotzab,* 217 F.3d 1365, 1370 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); *In re Jones,* 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992); *In re Fine,* F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). There is no suggestion in Nobuaki and Nagasawa et al. to substitute a wax wherein an endothermic amount of the paraffin wax or the microcrystalline wax per 1 g of said positive electrode current collector obtained by differential scanning calorimetry at 20 to 45°C is not more than 1.0 J/g, and a carbon rod having a density of 1.55 to 1.65 g/cm^3, wherein only the wax is impregnated into the carbon rod into the current collector of Nobuaki, as required by claims 1, 2, and 6, nor does common sense dictate the Office Action-asserted modification. The PTO has not provided any evidence that there would be any obvious benefit in making the asserted modification of Nobuaki et al. *See KSR Int'l Co. v. Teleflex, Inc.*, 500 U.S. ____ (No. 04-1350, April 30, 2007) at 20.

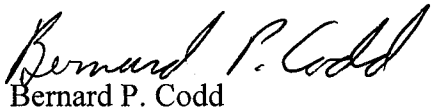
The only teaching of a positive current collector with the claimed wax and carbon rod density is found in Applicants' disclosure. However, the teaching or suggestion to make a claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The PTO has apparently relied on improper hindsight reasoning in reaching the conclusion of obviousness.

The dependent claims are allowable for at least the same reasons as the respective independent claims from which they depend, and further distinguish the claimed positive electrode current collector.

In view of the above remarks, Applicants submit that this case should be allowed and passed to issue. If there are any questions regarding this response or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,
McDERMOTT WILL & EMERY LLP



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Date: March 17, 2008